

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,953,534 B1
APPLICATION NO. : 09/611413
DATED : October 11, 2005
INVENTOR(S) : R. Douglas Hudgens

Page 1 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The title page should be deleted and substitute therefore the attached title page.

Delete Figs. 1 & 2 and substitute therefore Figs. 1 & 2 as shown on the attached page.

Substitute the attached formal drawings.

Col. 6, line 13, please add a period after the word --water.--

Col. 8, line 62, please delete the extra space between "T he"

Col. 8, line 64, please delete the "t" after the word "The"

Col. 8, line 64, please delete the extra space between "we re"

Claim 1, col. 9, line 65, please delete the words "and at least one of benzoic acid," and insert in lieu thereof --an aromatic carboxylic acid,--

Claim 1, col. 9, line 66, please add the word --optionally-- prior to "a C₉-C₁₂"

Claim 4, col. 10, line 16, please delete the words "benzoic acid" and insert in lieu thereof --an aromatic carboxylic acid,--

Claim 4, col. 10, line 17, please add the word --the-- after the word "or"

Claim 12, col. 11, line 16, please delete "pr" after the word "acid" and insert in lieu thereof --or--

Claim 13, col. 11, line 33, please delete the words "benzoic acid" and insert in lieu thereof --an aromatic carboxylic acid--

Claim 17, col 12, line 6, please insert the number --5-- in-between "about" and "wt"

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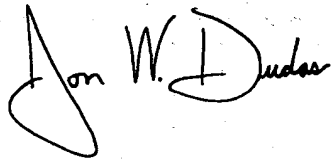
Page 2 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 19, col 12, line 16, please delete the words "benzoic acid" and insert in lieu thereof --an aromatic carboxylic acid--

Signed and Sealed this

Thirty-first Day of October, 2006

A handwritten signature in black ink, reading "Jon W. Dudas". The signature is stylized, with a large loop for the "J" and a distinct "Dudas" at the end.

JON W. DUDAS
Director of the United States Patent and Trademark Office



US006953534B1

(12) **United States Patent**
Hudgens

(10) Patent No.: **US 6,953,534 B1**
(45) Date of Patent: ***Oct. 11, 2005**

(54) **ENGINE ANTIFREEZE COMPOSITION**

(75) Inventor: **R. Douglas Hudgens, Cookeville, TN (US)**

(73) Assignee: **Fleetguard, Inc., Nashville, TN (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 206 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/611,413**

(22) Filed: **Jul. 6, 2000**

(51) Int. Cl.⁷ **C09K 5/00**

(52) U.S. Cl. **252/73; 252/71; 252/74; 252/75; 252/76; 252/78.3; 252/380; 252/387; 252/388; 252/389.2**

(58) Field of Search **252/71, 74, 75, 252/76, 78.3**

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,607,757 A	9/1971	McDonald	252/75
3,931,029 A	1/1976	Dutton et al.	252/76
4,342,596 A	8/1982	Conner, Sr.	106/14.13
4,382,008 A	5/1983	Boreland et al.	252/75
4,452,758 A	6/1984	Wilson et al.	422/15

(Continued)

FOREIGN PATENT DOCUMENTS

DE 195 47 499 5/1997

EP	0242900 B1	7/1991
EP	0552988 A1	7/1993
EP	0739 965	10/1996
GB	2 049 650	12/1980
GB	2 138 837	10/1984

OTHER PUBLICATIONS

Abstract: Database WPI Section Ch, Week 199313, Derwent Publications Ltd., Xp-002260154.

(Continued)

Primary Examiner—Yogendra N. Gupta

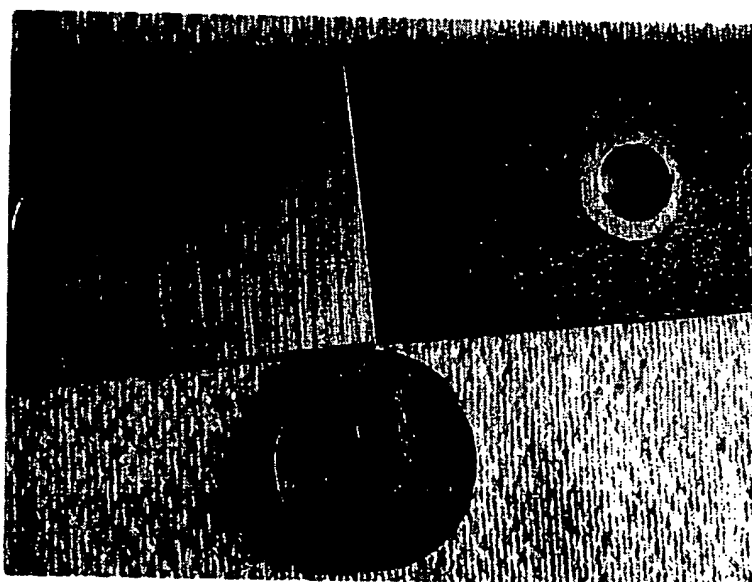
Assistant Examiner—D. G. Hamlin

(74) Attorney, Agent, or Firm—Woodard, Emhardt, Moriarty, McNett & Henry LLP

(57) **ABSTRACT**

In general this invention relates to an antifreeze composition that can be used in the cooling systems of internal combustion engines, for example, in heavy-duty diesel engines, light duty trucks and cars. The antifreeze composition can be added to water or other suitable liquid coolant in the cooling system, to lower the freezing point temperature of the coolant and inhibit corrosion of metallic components associated with the cooling system. The antifreeze composition is particularly well suited, although not exclusively, for use with hard water. The antifreeze composition includes an organic acid component comprising adipic acid and at least one of benzoic acid and one or more C₉-C₁₂ dicarboxylic acid—or salts of these acids. The antifreeze composition also includes other anti-corrosive additive, for example, molybdate, nitrite, nitrate silicate azoles and a variety of buffer agents.

25 Claims, 1 Drawing Sheet



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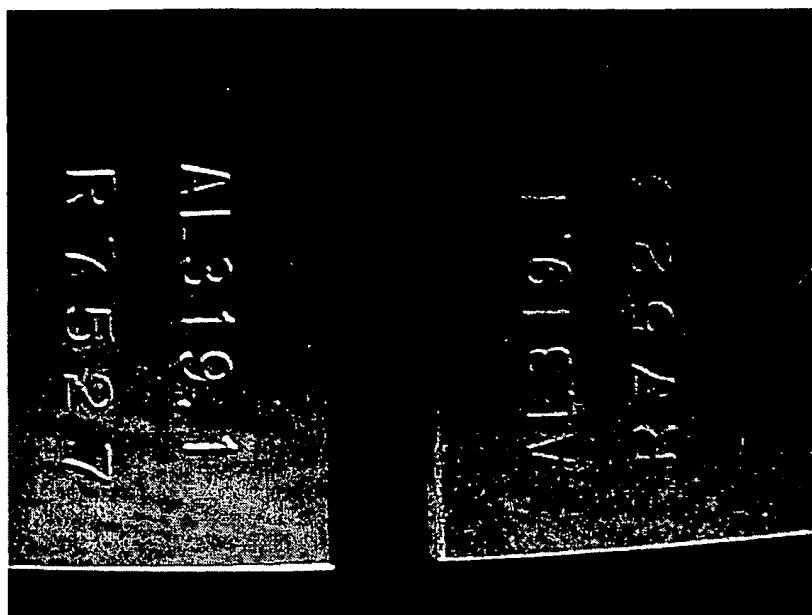


Fig. 1

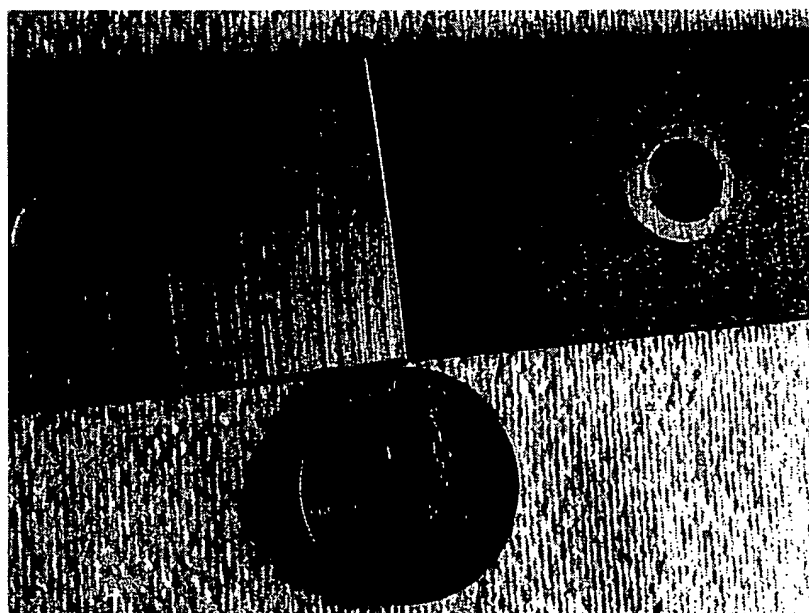


Fig. 2